

REMARKS

Claims 1-22 are pending in this application, of which claims 1, 4, 11, 15, and 22 are independent. In this Amendment, claims 1 and 2 have been amended. Care has been exercised to avoid the introduction of new matter. Support for the amendment of claims 1 and 2 can be found on, for example, page 7, lines 4-7 of the specification.

Claims 1-10 and 15-22 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Shpiro et al. in view of Brandow et al.

With respect to independent claim 1, the Examiner admitted that Shpiro et al. does not teach that the word separation means separates sentence speech information on the basis of each word included in the sentence using model phoneme array information, as claimed. However, the Examiner asserted that Brandow et al. teaches the missing feature of Shpiro et al. On that basis, the Examiner concluded that it would have been obvious to modify Shpiro's device based on the teachings of Brandow et al. to arrive at the claimed invention.

Applicants submit that the applied combination of Shpiro et al. and Brandow et al. does not teach a foreign language learning device including all the limitations recited in independent claim 1. Specifically, the applied combination does not teach, at a minimum, the following limitations:

a storage device storing model phoneme array information including array of phonemes and word boundaries of sentences to be spoken by a learner; [and]

word separation means for receiving sentence speech information, the sentence speech information corresponding to speech produced successively by the learner when the learner utters a sentence including a plurality of words, to separate said sentence speech information into word speech information on the basis of each word included in said sentence using said model phoneme array information.

As cited above, claim 1 recites separating sentence speech information into word speech information. The sentence speech information is speech produced successively by a learner when the learner utters a sentence including a plurality of words. To separate the sentence speech information into word speech information, the claimed invention uses model phoneme array information, stored in the storage device, including an array of phonemes and word boundaries of the sentence uttered by the learner. A sentence is prepared for the learner's practice, and the model phoneme array information is prepared in relation to that sentence. Claim 1 recites "storing model phoneme array information including array of phonemes and word boundaries of sentences to be spoken by a learner."

Different from the Office Actions issued before, the Examiner took a position that Shpiro et al. teaches using "model phoneme array information including an array of phonemes and word boundaries of the sentence" (claim 1) to separate sentence speech information. To support this position, the Examiner relied upon column 5, lines 33-41; column 7, lines 16-29; and column 9, lines 24-39 of Shpiro et al.

However, the portions of Shpiro et al., which the Examiner relied upon, simply describe that reference audio specimens are a multiplicity of phonemes, words, and/or phrases (see column 5, lines 36-38), and a silence speech boundary and consonant-vowel boundaries are identified based on energy and frequency of a speech (see column 7, lines 16-29; and column 9, lines 24-39). Accordingly, Shpiro et al. is silent on the claimed model phoneme array information which includes array of phonemes and word boundaries of sentences to be spoken by a learner, and which is used to separate sentence speech information.

The secondary reference, Brandow et al., does not teach separating sentence speech information on the basis of each word including in a sentence using model phoneme array

information. Brandow et al. pertains to a speech recognition system, but does not have any information on sentences to be recognized beforehand (see the storage device in claim 1). In addition, Brandow et al. in column 1, lines 21-35 describes converting an acoustic signal to a set of words by use of language model such as a hidden Markov model (HMM). However, the HMM is irrelevant to the claimed model phoneme array information. Thus, Brandow et al. is also silent on the claimed model phoneme array information which includes array of phonemes and word boundaries of sentences to be spoken by a learner, and which is used to separate sentence speech information. The deficiencies of Shpiro et al. are not cured by Brandow et al.

Based on the foregoing, the applied combination of Shpiro et al. and Brandow et al. does not teach a foreign language learning device including all the limitations recited in independent claim 1 within the meaning of 35 U.S.C. §103. The above discussion is applicable to independent claims 4, 15, and 22 reciting “separating said sentence speech information into word speech information on the basis of each word included in said sentence using model phoneme array information including an array of phonemes and word boundaries of the sentence [uttered by a learner].” Dependent claims 2, 3, 5-10, and 16-21 are also patentably distinguishable over Shpiro et al. and Brandow et al. at least because these claims include all the limitations recited in independent claims 1, 4, and 15, respectively. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

Claims 11-14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Shpiro et al. in view of Brandow et al. and further in view of Acero.¹

With respect to independent claim 11, the Examiner admitted that Shpiro et al. does not teach that the word separation means includes an array of phonemes and word boundaries of the sentence, as claimed. However, the Examiner asserted that Acero teaches the missing feature of Shpiro et al. On that basis, the Examiner concluded that it would have been obvious to modify Shpiro's device based on the teachings of Acero et al. to arrive at the claimed invention. This rejection is respectfully traversed.

Applicants submit that the applied combination of Shpiro et al. and Acero does not teach a foreign language learning device including all the limitations recited in independent claim 11. Specifically, the applied combination does not teach, at a minimum, the following limitations of claim 11 (emphasis added):

storage means for storing a model sentence to be pronounced by a learner and model phoneme array information including an array of phonemes and word boundaries corresponding to said model sentence; [and]

word separation means for receiving sentence speech information corresponding to a sentence pronounced by said learner to separate the sentence speech information into word speech information on the basis of each word included in said sentence.

It is submitted that Shpiro et al. is silent on the claimed model phoneme array information which includes array of phonemes and word boundaries of sentences to be spoken by a learner, and which is used to separate sentence speech information. Applicants incorporate herein the arguments regarding Shpiro et al. previously advanced in responding to the rejection of claim 1 under 35 U.S.C. § 103 for obviousness predicated upon Shpiro et al. in view of Brandow et al.

¹ Applicants understand that the Examiner intended to indicate that Claims 11-14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Shpiro et al. in view of Acero because there is no discussion on Brandow et al. in the Examiner's statements of the rejection regarding claims 11-14.

The secondary reference, Acero, pertains to a speech synthesizing system, and hence, does not disclose a system recognizing learner's utterances by using text data. The reference does not have any information on sentences to be recognized beforehand (see the storage means in claim 11). The Examiner identified parser 294 in Fig. 4 of Acero as the claimed word separation means. However, parser 294 is not provided to separate sentence speech information into word speech information. According to Acero, parser 294 parses training text 282 into sub-word units or states (column 5, lines 14-16). Text 282 is not the claimed speech information, but a text itself because Acero describes "input speech 280 is generated by a speaker while reading text 282" (column 4, line 40-42), i.e., Acero pertains to a speech synthesizing system. Furthermore, Acero does not teach using text 282 to separate sentence speech information into word speech information based on words included in the text. In contrast, claim 11 recites "receiving sentence speech information corresponding to a sentence pronounced by said learner to separate the sentence speech information into word speech information on the basis of each word included in said sentence."

Based on the foregoing, the applied combination of Shpiro et al. and Acero does not teach a foreign language learning device including all the limitations recited in independent claim 11 within the meaning of 35 U.S.C. §103. Dependent claims 12-14 are also patentably distinguishable over Shpiro et al. and Acero at least because these claims include all the limitations recited in independent claims 11. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

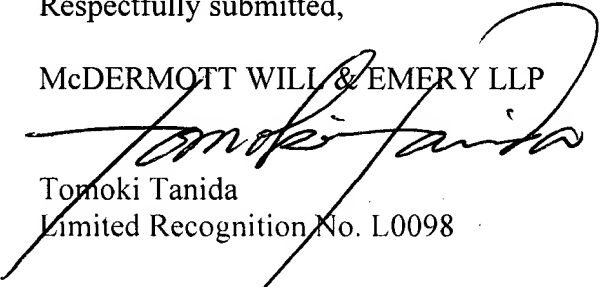
Conclusion

It should, therefore, be apparent that the imposed rejections have been overcome and that all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP


Tomoki Tanida
Limited Recognition No. L0098

**Please recognize our Customer No. 20277
as our correspondence address.**

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 SAB:TT
Facsimile: 202.756.8087
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